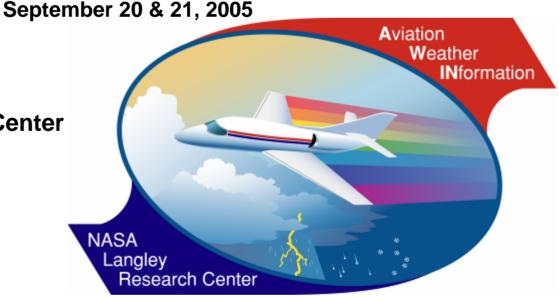
Aviation Weather InformationOverview

NASA Aviation Safety and Security Program
Weather Accident Prevention Project Review

Paul Stough NASA Langley Research Center Hampton, VA





Aviation Weather Information

Plan

- Approach
- Technologies

Plan



Aviation Weather Information

Goal

Develop technologies and methods for providing pilots with sufficiently accurate, timely and intuitive information during the en route phases of flight which, if implemented, will enable a 25 to 50% reduction in aircraft accidents attributable to lack of weather situation awareness

Objectives

Develop Needed
Weather Products and
Sensing Capabilities

Develop Enhanced
Weather Presentations
and Decision Aids

Challenges

Improved Forecasts
Need Better
Input Data

Existing Aircraft
Need Retrofit
Capability

Pilot Workload Should Not Be Increased

Diverse Aviation User Groups

Approach

Use Aircraft and Satellites as Wx Data Collectors

Develop Technologies for Installed and Portable Systems

Provide
Decision Aids and
Operational Guidelines

Technology Development



Aviation Weather Information

Weather Channel in the Cockpit

Implementation Catalyst

Develop viable 1st generation systems

Stimulate implementation

1998 2001

2005

Information; Not Data

Next generation technologies

Data fusion

Alerting and decision aiding

Cooperative Research Efforts



Aviation Weather Information

- National Airline / Transport and World-Wide Weather Information Systems
 - Boeing Aviation Weather Information (AWIN)
 - Honeywell Weather Information Network (WINN)
- National General Aviation Weather Information Systems
 - ARNAV Weather Hazard Information System: Reducing GA Fatal Weather-

Related Accidents

NavRadio GA-Oriented VHF DataLink (VDL) Mode 2-Based Weather and Flight

Information Services (FIS) Broadcast, Reception, and Display System

Topical Category

- Honeywell Weather Avoidance Using Route Optimization as a Decision Aid
- NavRadio General Aviation Oriented Electronic Pilot Report (EPIREP)

Generation and Datalink System

Rockwell Aviation Weather Awareness and Reporting Enhancements (AWARE)

Rockwell Enhanced On-Board Weather Information System

NCAR A Demonstration of an End-to-end Oceanic Weather Hazard

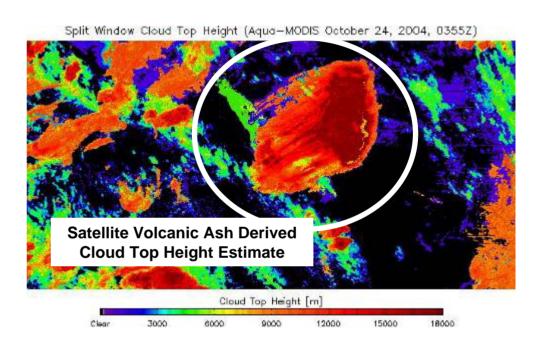
Information Dissemination System

Wx Products and Sensing Capabilities

Aviation Weather Information



TAMDAR - Tropospheric Airborne Meteorological Data Reporting



ASAP - Advanced Satellite Aviation-weather Products

Transport Airplanes

Aviation Weather Information



Aviation Weather Information Display Experiment



Team Decision Making







Final Flight Experiment

AWIN-TPAWS
Integration Experiment

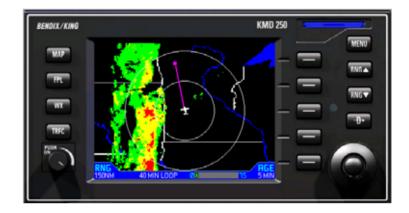
General Aviation



Aviation Weather Information



Automated Weather Decision Aiding



NEXRAD Looping



Summary



Aviation Weather Information

 AWIN systems implemented; next generation capabilities developed.

- TAMDAR developed; operational evaluation ongoing.
- ASAP integrated with aviation weather product development.